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(DE). MEIERHÖFER, Markus [DE/DE]; Mühlenhof
24, 50354 Hürth (DE).

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(71) Applicant (*for all designated States except US*): BASELL
POLYOLEFINE GMBH [DE/DE]; Brühler Strasse 60,
D-50389 Wesseling (DE).

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(72) Inventors; and

(75) Inventors/Applicants (*for US only*): MIHAN, Shahram
[IR/DE]; Am Eichwald 18, 65812 Bad Soden (DE).
GSELLA, Wolfgang [DE/DE]; Bergstr. 34, 50999 Köln
(DE). KÖLLE, Peter [DE/DE]; Kirschblütenweg 7,
50996 Köln-Rodenkirchen (DE). WULFF-DÖRING,
Joachim [DE/DE]; Hanns-Fay-Str. 4, 67227 Frankenthal

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(54) Title: LOOP REACTOR WITH VARYING DIAMETER FOR OLEFIN POLYMERIZATION

(57) Abstract: Process for polymerizing at least one olefinic monomer in a loop reactor at from 20 to 150°C, but below the melting point of the polymer to be formed, and a pressure of from 5 to 100 bar, where the polymer formed is present in a suspension in a liquid or supercritical suspension medium and this suspension is circulated by means of an axial pump, wherein the polymerization is carried out at an average solids concentration in the reactor of more than 53% by weight, based on the total mass of the contents of the reactor, in the case of continuous product discharge and at an average solids concentration in the reactor of more than 45% by weight, based on the total mass of the contents of the reactor, in the case of discontinuous product discharge, and wherein the polymerization is carried out at an ethylene concentration of at least 10 mol%, based on the suspension medium. The loop reactor has a diameter which varies by at least 10% and in which there is at least one widening and narrowing in a region other than that of the axial pump.

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